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(54) POWDER COMPACTING METHOD

(57) Abstract:

PROBLEM TO BE SOLVED: To control the friction among powder particles or between a mold and powder particles at a low level or below and to improve the properties of a sintered product by forming a coating film consisting of a solid lubricant on the surface of at least any one of the powder and the mold inner wall and, thereafter, compacting the powder.

SOLUTION: In powder metallurgy, a coating film consisting of a lubricant is formed on the surface of at least any one of the powder and the mold inner wall before filling a mold with a powder, by heating a solid lubricant consisting of a fatty acid or metallic soap to a temp. at or above the melting point of the lubricant

to melt it and, thereafter, atomizing and spraying the melted lubricant. At this time, the atomized lubricant is allowed to impact on the surface of the powder or mold inner wall to stick it to the surface and, concurrently, the lubricant is cooled to instantaneously form a uniform lubricant coating film without requiring any drying time. By using this method, since the rotation of each of magnetic particles in the compacting process in a magnetic field becomes smooth, an anisotropic rare earth sintered magnet having a high degree of orientation, and accordingly, a high residual flux density can be manufactured. Further, the content of oxygen or hydrogen in the sintered magnet can be controlled at a low level or below to improve the coercive force of the magnet.

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